

## STEREO PULSE OXIMETER

### Abstract of the Disclosure

An improved pulse oximeter provides for simultaneous, noninvasive oxygen status and photoplethysmograph measurements at both single and multiple sites. In particular, this multiple-site, multiple-parameter pulse oximeter, or "stereo pulse oximeter" simultaneously measures both arterial and venous oxygen saturation at any specific site and generates a corresponding plethysmograph waveform. A corresponding computation of arterial minus venous oxygen saturation is particularly advantageous for oxygen therapy management. An active pulse-inducing mechanism having a scattering-limited drive generates a consistent pulsatile venous signal utilized for the venous blood measurements. The stereo pulse oximeter also measures arterial oxygen saturation and plethysmograph shape parameters across multiple sites. A corresponding calculation of delta arterial saturation and comparison of plethysmograph shape parameters between multiple sites is particularly advantageous for the detection and management of persistent pulmonary hypertension in neonates (PPHN), a patent ductus arteriosus (PDA), and aortic coarctation.